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ABSTRACT

This study examined the effects of instruction versus no instruction of comprehension monitoring strategies on the metacognitive awareness and reading achievement of third and fifth grade students. The study also examined the effects of direct instruction of a written or checksheet comprehension monitoring strategy on the metacognitive awareness and reading achievement of the same students. Subjects were 57 fifth grade students and 51 third grade students from six intact classrooms enrolled in four city schools in a midwestern community. One experimental group was taught the K-W-L comprehension monitoring strategy, a self-questioning, three-step procedure where students fill out a strategy sheet prior to and immediately following their reading. (Step K is What I Know; step W is What I Want to Learn; and step L is What I Learned.) The other experimental group was taught the Predicting/Evaluating comprehension monitoring strategy, a checklist strategy where students check off questions that assess their predictions after reading. The control group read the same expository text during sustained silent reading but no instruction in comprehension monitoring strategies occurred prior to the reading. Results indicated that metacognitive awareness may be a late-developing process that is not sensitive to type of strategy taught and difficult to accurately assess with a current informal assessment measure. Reading achievement was not affected by comprehension monitoring instruction. (Five tables of data and three figures are included. (MG)

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Effects of Two Comprehension Monitoring Strategies on the Metacognitive Awareness and Reading Achievement of Third and Fifth Grade Students

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Running Head: COMPREHENSION MONITORING STRATEGIES

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Abstract

Although numerous studies have been done to examine metacognition in reading comprehension, and multiple comprehension monitoring strategies have been used, no comparison between or among different types of comprehension monitoring strategies has been done. This study looked at the effects of instruction versus no instruction of comprehension monitoring strategies on the metacognitive awareness and reading achievement of third and fifth grade students. In an attempt to take the research one step further, this study also examined the effects of direct instruction of a written or checksheet comprehension monitoring strategy on the metacognitive awareness and reading achievement of the same students. Data indicated that metacognitive awareness may be a late developing process that is not sensitive to type of strategy taught, and difficult to accurately assess with a current informal assessment measure. Reading achievement was not affected by comprehension monitoring instruction.

EFFECTS OF TWO COMPREHENSION MONITORING STRATEGIES ON THE METACOGNITIVE AWARENESS AND READING ACHIEVEMENT OF THIRD AND FIFTH GRADE STUDENTS

Reading is currently viewed as an active process where the reader interacts with print clues to construct meaning. Knowledge possessed by the reader, information from the text, and the contextual situation act together resulting in comprehension (Dewitz, Carr, & Patberg, 1987; Paris, Oka, & DeBritto, 1983; Valencia & Pearson, 1987). As the definition of reading changed from one of mastery of isolated subskills to one of an integrated process for understanding of text, a reader's metacognition has been emphasized. Brown (1980) defined metacognition as the deliberate conscious control of one's own cognitive actions. "In reading, metacognition means being aware of one's purpose for reading, how to proceed in achieving this purpose, and how to regulate progress through self-checking of comprehension" (McNeil, 1987). Applying metacognition to reading occurs when a reader detects failure of comprehension processing and uses appropriate reading strategies to facilitate understanding. Thus, awareness of behavior during

reading, and techniques used to monitor and regulate reading are metacognitive strategies used during reading comprehension.

In the last decade, researchers' attention has focused on metacognitive awareness and comprehension monitoring during the reading process. Conclusions from multiple studies include the generalization that older and skilled readers demonstrate more metacognitive awareness and use of comprehension monitoring during reading than younger and less skilled readers (Baker & Brown, 1984; Palincsar & Ranson, 1988; Paris, Oka, & DeBritto, 1983). This generalization has resulted in researchers suggesting that students " ... need to be taught comprehension monitoring strategies to use when comprehension fails and text does not make sense" (Wham, 1987). Research evaluating metacognitive strategy instruction suggests that students can be taught when and how to use comprehension monitoring strategies through explicit instruction (Palincsar, 1986; Paris & Oka, 1986; Pearson & Dole, 1987; Wham, 1987). Results from studies by Paris, Cross, and Lipson (1984), Paris and Jacobs (1984), Paris and Oka (1986), and Jacobs and Paris (1987) concluded that direct instruction of

comprehension monitoring strategies increased metacognitive awareness with older readers outperforming younger readers and females outperforming males when measured by a metacognitive process test. Their interventions failed to improve reading achievement scores for any subjects on a standardized comprehension subtest.

Although numerous studies have been done to examine metacognition in reading comprehension, and multiple comprehension monitoring strategies have been used, no comparison between or among different types of strategies has been done. Perhaps different types of strategies produce different results. Studies have not been done to look at the effectiveness of different types of strategies with different population samples. Questions such as "Will a written comprehension monitoring strategy be more effective than a checksheet strategy in increasing metacognitive awareness in reading comprehension for third graders?" or "Will a checksheet strategy be just as effective as a written comprehension strategy in increasing metacognitive awareness in reading comprehension for fifth graders?" have not been asked. The present study examined comprehension strategy versus no comprehension strategy

instruction on the metacognitive awareness and reading achievement of third and fifth grade students in an attempt to reexamine the same question asked by previous research. In an attempt to take the research one step further, this study also examined the effects of direct instruction of a written or checksheet comprehension monitoring strategy on the metacognitive awareness and reading achievement of third and fifth grade students. Two research questions guided the study:

1. Will students who receive instruction and practice in a comprehension monitoring strategy increase their metacognitive awareness and reading achievement more than students who do not receive instruction and practice in a comprehension monitoring strategy, and will the differences between the groups vary with grade level and gender?

2. Will students who receive instruction and practice using a written comprehension monitoring strategy increase their metacognitive awareness and reading achievement more than students who receive instruction and practice using a checksheet comprehension monitoring strategy, and will the

differences between the groups vary with grade level and gender?

Procedures

Subjects

The subjects were 57 fifth grade students and 51 third grade students from six intact classrooms enrolled in four city schools in a midwest community. Treatment (written strategy, checksheet strategy, control) was randomly assigned to the three fifth and three third grade classrooms. Three schools housed the experimental groups; the fourth, the control group. School A served 344 students and housed the fifth grade Predicting/Evaluating experimental group. School B served 379 students and housed the third grade Predicting/Evaluating experimental group. School C served 344 students and housed the third and fifth grade K-W-L experimental groups. School D served 272 students and housed the third and fifth grade control groups. All schools represented a range of demographic and socioeconomic characteristics as determined by district records and interviews with the principals. Approximately 80% of the children were from white families with the remainder from black or Asian

families. There were similar numbers of boys and girls. Using four schools eliminated criterion interference and also allowed for voluntary teacher participation.

Strategies

The K-W-L Comprehension Monitoring Strategy. One experimental group (one fifth and one third grade) was taught the K-W-L comprehension monitoring strategy while reading the assigned expository text using whole class instruction during the 30 minute scheduled time. K-W-L (Ogle, 1986) is a self-questioning, three-step procedure where students fill out a strategy sheet prior to and immediately following their reading. (see Figure 1) Step K -- What I Know involves brainstorming what is known about a topic prior to reading. Suggestions are grouped into similar categories. Step W -- What do I want to learn involves asking questions that may be answered during reading. Step L -- What I Learned occurs after reading when information learned from reading is listed.

On Monday, the teachers introduced and modeled the strategy using the assigned story in the text. The students brainstormed what they knew about the topic

while the teacher listed their ideas on the chalkboard. Then they grouped their suggestions into similar categories. The students then recorded the results on their strategy sheet under K-What I Know. Next, the students suggested what they would like to learn from their reading and listed those suggestions under W-What Do I Want to Learn. Finally, after reading the text, the students listed L-What They Learned During Reading. On Wednesday and Friday of week one, and Monday, Wednesday, and Friday of week two, the teachers followed a similar format using a new story in the text each day.

On Tuesday of week three, the teacher assigned the next story. The students worked through the three steps of the strategy independently. The teacher observed and answered all questions while the students worked. After reading and completion of step three, the teacher and students discussed the strategy sheet. Thursday of week three, and Tuesday and Thursday of week four followed a similar format. If the students were having difficulty applying the strategy, the teacher prompted them by either asking a question or making a suggestion. During these last two weeks, the

teacher gradually released responsibility for using the strategy to the students.

Predicting/Evaluating Comprehension Monitoring Strategy

The other experimental group (one fifth and one third grade) was taught the Predicting/Evaluating comprehension monitoring strategy while reading the assigned expository text using whole class instruction during the 30-minute scheduled time.

Predicting/Evaluating is a checksheet strategy where students check off self-questioning prediction steps prior to reading and then check off questions that assess their predictions after reading. (see Figure 2) On Monday, the teachers introduced the strategy using the assigned story in the text. Prior to reading, the teacher and students read the four questions in the What I Predict Will Happen section of the checksheet. They orally discussed and checked off each statement as they completed it. After reading the text, the teacher and students completed section two of the checksheet, Assessing My Prediction/Predictions. On Wednesday and Friday of week one, and Monday, Wednesday, and Friday of week two, the teachers followed a similar format using a new story in the text each day.

On Tuesday of week three, the teacher assigned the next story. The students worked through the What I Predict Will Happen section independently prior to reading the assigned text. After reading, the students worked through the Assessing My Prediction/Predictions section independently. After completion of part two, the teacher and students discussed the checksheet. Thursday of week three, and Tuesday and Thursday of week four followed a similar format. If the students were having difficulty applying the strategy, the teacher prompted them by either asking a question or making a suggestion. During these last two weeks, the teacher gradually released responsibility for using the strategy to the students.

Control Group Reading.

The control group students read the same expository text as the experimental groups during sustained silent reading. No instruction in comprehension monitoring strategies occurred prior to reading in the expository text.

Assigned Expository Text and Staff Development Sessions

All subjects (experimental groups and control group) in the study read the same expository stories from identical text in an assigned sequence. A pilot

study for the staff development sessions was conducted prior to the actual teacher inservice where scripted lessons and instruction procedures were developed. For the study, the researcher met with the teachers in the experimental groups. The strategies were taught and modeled by the researcher and information sheets were distributed which outlined day-by-day teaching procedures. The researcher met with the control group teachers to distribute instruction sheets for the same day-by-day story reading in the expository text. All instruction procedures and questions were scripted to control what the teachers taught and how they responded to the students' questions and problems. During the study, the researcher visited the schools at least twice a week to verify use of assigned procedures.

Instruments

The Index of Reading Awareness (IRA) (Jacobs & Paris, 1987), a group administered multiple choice process instrument composed of 20 metacognitive questions about a reader's knowledge of reading, was used as the covariate and measure of the dependent variable, metacognitive awareness. The instrument has been used in numerous studies as a measure of metacognitive awareness. It was designed to measure

four aspects of metacognition: evaluation, planning, regulation, and conditional knowledge. The IRA questions assess "children's knowledge about reading and their abilities to evaluate tasks, goals, and personal skills; to plan ahead for specific purposes; to monitor progress while reading; and to recruit fix-up strategies as needed" (Jacobs & Paris, 1987, p. 268).

Fifteen of the questions were devised by Paris and Jacobs (1984). The last five questions which measure conditional knowledge were devised and added later by Jacobs and Paris (1987). Each question has three alternative responses. The inappropriate response receives zero points, the partially adequate answer, one point, and the strategic response, two points.

The comprehension subtests (forms K & L) of the Gates-MacGinitie Reading Tests third edition (1989) were used as the covariate and measure of the dependent variable, reading achievement. These comprehension subtests are product tests where students read short paragraphs and then answer several passage dependent questions. They were used in this research to replicate studies by Paris, Cross, and Lipson (1984),

Paris and Jacobs (1984), Paris and Oka (1986), and Jacobs and Paris (1987).

RESULTS

Since metacognitive awareness was measured using a process test and reading achievement was measured using a product test, two separate 3 (treatment: K-W-L, Predicting/Evaluating, Control) X 2 (third grade, fifth grade) X 2 (gender) analyses of covariance were used to address the two research questions, first looking at using a comprehension monitoring strategy versus no comprehension monitoring strategy, and second between two different types of strategies. Use of analysis of covariance depends on a test of the homogeneity of regression coefficients (Kennedy & Bush, 1985; Pedhazur, 1982; Stevens, 1986). In this study, the test for the homogeneity of regression resulted in a lack of significance making it appropriate to use analysis of covariance to address the two research questions. A hierarchical interpretation of the relationship between the dependent variables and the various effects was conducted for each research question.

Metacognitive Awareness (Index of Reading Awareness)

Table 1 presents the pretest, posttest, and adjusted posttest means for the two experimental groups compared to the control group. The ANCOVA three-way interaction among treatment, grade, and gender for comprehension monitoring strategy versus no comprehension monitoring strategy was significant. Because the effect of treatment depended not only on grade level but also gender ($F[1,99] = 5.27$, $p = .024$), the interaction was clarified by examining adjusted cell means. Table 2 reports the adjusted cell means of the combined experimental groups and the control group by grade level and gender. Figure 3 graphically displays the adjusted cell means of the combined experimental groups and the control group by grade level and gender. To explain the variability in the three way interaction, simple effects analyses were performed on the adjusted cell means between the experimental and control groups holding grade level and gender constant. Results indicated third grade males in the comprehension monitoring strategy groups were significantly different from third grade males in the no comprehension monitoring strategy group ($F[1,99] = 15.99$, $p = .0001$) with third grade males in the no comprehension monitoring strategy group outperforming

third grade males in the comprehension monitoring strategy groups.

Table 3 presents the pre-test, posttest, and adjusted posttest means for the comparison between the two experimental groups. The main effect for both grade level ($F[1,64] = 4.64$, $p = .035$) and gender ($F[1,64] = 4.27$, $p = .043$) was significant for the difference between the two comprehension monitoring strategies. Fifth graders ($x = 27.6$) outperformed third graders ($x = 25.94$) regardless of gender and regardless of comprehension monitoring strategy taught. It was also concluded that females ($x = 27.6$) outperformed males ($x = 25.94$) regardless of grade level and regardless of comprehension monitoring strategy taught.

Reading Achievement (Comprehension Subtest of the Gates MacGinitie Reading Tests)

Table 4 presents the pretest, posttest, and adjusted posttest means for the two experimental groups compared to the control group. The ANCOVA showed no significant differences between third and fifth grade males and females in the comprehension monitoring strategy versus no comprehension monitoring strategy analyses (Gender $F[1,64] = .32$, $p = .571$; Grade $F[1,64]$

= 2.64, p = .108). Table 5 presents the pretest, posttest, and adjusted posttest means for the comparison between the two experimental groups. In the ANCOVA analyses of the differences between two comprehension monitoring strategies, the main effect of grade level was significant (F[1,64] = 5.35, p = .024). Third graders (x = 44.8) outperformed fifth graders (x = 37.13) regardless of gender and regardless of comprehension monitoring strategy taught.

DISCUSSION

Numerous researchers have found that metacognitive awareness could be improved by direct instruction in comprehension monitoring strategies (Jacobs & Paris, 1987; Paris, Cross, & Lipson, 1984; Paris & Jacobs, 1984; Paris & Oka, 1986). Jacobs and Paris (1987), using the Index of Reading Awareness (IRA), found that fifth graders scored higher than third graders and females scored significantly higher than males when instructed in comprehension monitoring strategies. The results from this study were not supportive of these differences. Simple effects analyses to interpret the three-way interaction lead to the conclusion that third grade males in the no comprehension monitoring strategy

instruction group actually outperformed third grade males in the comprehension monitoring strategy instruction groups. Several explanations are possible. First, the IRA may not measure what it is Jacobs and Paris had hoped it would measure. When Jacobs and Paris utilized the IRA in multiple studies, they used instructional programs designed to reflect items on it (Jacobs & Paris, 1987). Naturally, students would improve in performance. In this study, no specific instruction to "teach the test" took place. Therefore, unpredictable results occurred. A second possibility is that metacognition is such a "gray area" construct that consistent measurement is impossible. If metacognitive awareness is a developmental process then it comes as no surprise that Jacobs and Paris found fifth graders outperforming third graders and females outperforming males. Going one step further, with an internal consistency reliability of only .61 (Mayer McLain, Gridley, & McIntosh, 1990) and metacognitive awareness a difficult construct to measure, perhaps the IRA is not sensitive enough to measure beginning developmental differences due to instruction. Maybe the instrument only measures later development due to

instructional procedures, and maybe only then when instruction is specific to the test.

Various researchers have examined the effectiveness of written comprehension monitoring strategies (Carr & Ogle, 1987; Heller, 1986; Ogle, 1986) and the effectiveness of checksheet comprehension monitoring strategies (Preul & Dewitz, 1986; Smith & Vanbiervliet, 1986; Wong & Jones, 1982) on metacognitive awareness. Results indicated that instruction in both written and checksheet strategies increased metacognitive awareness. Studies have not been done to compare the effectiveness of the two types of comprehension monitoring strategies. In this study, no differences between the effect of comprehension monitoring strategy were found. However, females outperformed males and fifth graders outperformed third graders in metacognitive awareness regardless of type of comprehension monitoring strategy taught. Again, this is not surprising. Metacognitive awareness is a part of comprehension monitoring, and research in this area indicates that comprehension monitoring usually increases with reading experience and age. Also, if the IRA is only sensitive to later developmental differences, then this result seems logical.

Various researchers have had mixed results when measuring students' reading achievement performance on a normed, standardized test after instruction and practice in comprehension monitoring strategies (Jacobs & Paris, 1987; Paris, Cross, & Lipson, 1984; Paris & Jacobs, 1984; Paris & Oka, 1986). Paris and Jacobs (1984) reported a positive relationship between awareness and comprehension for all subjects with fifth graders outperforming third graders. Subjects' levels of awareness were highly related to reading achievement as measured by the Gates-MacGinitie Reading Tests. Paris, Cross, and Lipson (1984) found that performance scores on the Gates-MacGinitie Reading Tests were comparable for students who received instruction and practice in comprehension monitoring strategies and those who did not. This study, using the same normed, standardized test, suggested similar results. Third and fifth graders and males and females performed equally well in reading achievement whether or not they received instruction and practice using a comprehension monitoring strategy. Comprehension subtests of standardized tests such as the Gates-MacGinitie measure overall comprehension. Metacognitive awareness is only one small portion of the entire picture. As a result,

standardized tests appear to be insensitive to any kind of metacognitive training. Only relationships between metacognitive awareness and reading achievement are mentionable. Another explanation of the above result is possible. The Gates-MacGinitie is a product test where comprehension is measured by students selecting answers to passage dependent, forced-choice questions after reading a short three to four line paragraph. The reading process, of which metacognitive awareness is a part, may not be addressed. Prior knowledge is not assessed, no purpose for reading is given, and lengthy paragraphs with predictable story structure are missing. It is not surprising that such instruments do not measure metacognitive awareness when it is debatable as to whether their format even allows for measurement of comprehension in the reading process (Valencia & Pearson, 1987; Farr & Carey, 1986).

The unpredicted result occurred in this study when third graders outperformed fifth graders in reading achievement on the standardized subtest regardless of gender and comprehension monitoring strategy taught. Since one function served by covariance analysis "...is to adjust the posttest means for initial differences among the groups which are very likely with intact

groups" (Stevens, 1986, p. 292), the reason for the discrepancy is unknown. One explanation is possible. During the posttest for one fifth grade class, snow began to fall causing a distraction for the students. Since they were already working on the test, it was impossible to stop. Their scores were extremely low resulting in lower overall fifth grade scores.

IMPLICATIONS

Since comprehension is the goal of all reading, and because it has been shown that awareness of metacognition is characteristic of good comprehenders (Paris & Jacobs, 1984; Schmitt, 1988), the effect on students of teaching comprehension monitoring strategies to increase comprehension, metacognitive awareness, and reading achievement will continue to be a major question for reading process research. From this study, the effectiveness of teaching comprehension strategies on metacognitive awareness and reading achievement is questionable. The results do have several implications for future research. First, some subjects who read text without comprehension monitoring strategy instruction outperformed those who read the same text and received comprehension monitoring

strategy instruction. A question asked by other researchers comes to mind: Does strategy instruction teach students to be better readers or just to be better at using strategies (Pearson & Dole, 1987; Rosenshine, 1980)? In this study comprehension monitoring strategy instruction did not teach students to be better, more metacognitively aware readers as measured by the Index of Reading Awareness. Continued research with larger samples is needed.

Second, females outperformed males and fifth graders outperformed third graders in metacognitive awareness regardless of strategy taught. This may confirm some researchers suggestions that metacognition is a late developing skill (Baker & Brown, 1984). If so, should teachers teach comprehension monitoring strategies to early readers to develop metacognitive awareness or will the awareness actually develop as students get older and continue to read?

Third, additional research needs to be done looking at the effectiveness between or among different comprehension monitoring strategies. If comprehension monitoring strategy instruction does increase comprehension and metacognitive awareness as prior studies have indicated, then this could be important

information for classroom teachers. Perhaps younger students need written comprehension monitoring strategies while older students can perform just as well with an oral or checksheet comprehension monitoring strategy. Or perhaps as this study concluded, type of comprehension monitoring strategy instruction does not produce significance. Since this is the first study to look at a written comprehension monitoring strategy versus a checksheet comprehension monitoring strategy, more research is needed.

Fourth, the use of a normed, standardized test to measure reading achievement resulted in the usual discrepancies. Although the standardized test was used in this study to replicate several prior studies, a reading process test would have been a more effective measure of reading achievement (Valencia & Pearson, 1987; Meyers & Kundert, 1988). Since reading is a process where the reader's prior knowledge and role during reading play a major part, instruments that measure these areas should be used. Only then will the effectiveness of comprehension monitoring strategy instruction on reading achievement be measured.

Finally, the primary challenge to researchers and educators is to develop new instruments for effectively

measuring the process of metacognition. Without such instruments the effect of teaching comprehension monitoring strategies versus not teaching comprehension monitoring strategies as well as a closer look at the effectiveness of specific comprehension monitoring strategies on metacognitive awareness can only be speculated or inferred from the research.

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Table 1

Two Experimental Groups Compared to Control Group: Means of the Scores on the Index of Reading Awareness Adjusted for the Covariate

Source	N	Pretest Mean	Observed Posttest Mean	Adjusted Posttest Mean
Experimental:				
Males				
Grade 3	18	26.44	25.00	25.84
Grade 5	19	27.68	28.00	28.03
Females				
Grade 3	17	25.47	26.53	28.00
Grade 5	19	26.16	18.11	29.13
Control:				
Males				
Grade 3	4	27.50	32.25	32.40
Grade 5	10	30.80	30.60	28.62
Females				
Grade 3	12	29.50	29.50	28.36
Grade 5	9	28.33	29.89	29.50

Table 2

Adjusted Cell Means for the Experimental Groups Compared to the Control Group Across Grade and Gender - Index of Reading Awareness

	Males		Females	
	Third	Fifth	Third	Fifth
Two Experimental Groups	25.84	28.03	28.00	29.13
Control Group	32.40	28.62	28.36	29.50

Table 3 K-W-L Experimental Group Compared to Predicting/Evaluating Group: Means of the Scores on the Index of Reading Awareness Adjusted for the Covariate

Source	N	Pretest Mean	Observed Posttest Mean	Adjusted Posttest Mean
K-W-L:				
Males				
Grade 3	7	20.86	21.29	24.68
Grade 5	11	26.73	27.82	27.52
Females				
Grade 3	9	23.67	25.33	26.96
Grade 5	10	26.20	28.00	28.04
Predicting/ Evaluating:				
Males				
Grade 3	11	30.00	27.36	25.01
Grade 5	8	29.00	28.25	26.53
Females				
Grade 3	8	27.50	27.88	27.09
Grade 5	9	26.11	28.22	28.31

Table 4 Two Experimental Groups Compared to Control Group: Means of the Scores on the Comprehension Test of the Gates-MacGinitie Reading Tests Adjusted for the Covariate

Source	N	Pretest Mean	Observed Posttest Mean	Adjusted Posttest Mean
Experimental:				
Males				
Grade 3	18	52.22	47.78	45.11
Grade 5	19	40.37	34.95	40.70
Females				
Grade 3	17	49.06	49.06	48.64
Grade 5	19	42.26	34.32	38.72
Control:				
Males				
Grade 3	4	48.00	56.00	56.33
Grade 5	10	58.10	55.30	48.46
Females				
Grade 3	12	49.58	43.50	42.70
Grade 5	9	48.11	47.00	47.25

Table 5 K-W-L Experimental Group Compared to Predicting/Evaluating Group: Means of the Scores on the Comprehension Test of the Gates-MacGinitie Reading Tests Adjusted for the Covariate

Source	N	Pretest Mean	Observed Posttest Mean	Adjusted Posttest Mean
K-W-L:				
Males				
Grade 3	7	39.71	32.43	35.49
Grade 5	11	41.55	31.55	33.62
Females				
Grade 3	9	47.78	47.89	46.59
Grade 5	10	42.30	37.00	38.66
Predicting/ Evaluating:				
Males				
Grade 3	11	60.18	57.55	49.53
Grade 5	8	38.75	39.63	43.21
Females				
Grade 3	8	50.50	50.38	47.60
Grade 5	9	42.22	31.33	33.04

Figure 1

K-W-L STRATEGY SHEET

WHAT I KNOW	WHAT I WANT TO FIND OUT	WHAT I LEARNED OR STILL NEED TO KNOW

Figure 2

PREDICTING/EVALUATING CHECKSHEET

PREDICTING

BEFORE READING: What I Predict Will Happen

_____ 1. I looked over entire reading selection examining titles, subtitles, pictures, and graphs.

_____ 2. If there were pictures, I used them to predict what I will read.

_____ 3. I used titles or subtitles to predict what I will read.

_____ 4. If possible, I combined the above 2 and 3 and predicted what I will read.

EVALUATING

AFTER READING: Assessing My Prediction/Predictions

_____ 1. My prediction was correct.

_____ 2. My prediction was not correct.

_____ 3. I understand what I read.

_____ 4. What did it say?

_____ 5. What do I remember

_____ 6. I do not understand or remember what I read.

_____ 7. I will begin the checksheet again. Then I will reread.

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Figure 3

Adjusted Cell Means for the Experimental Groups Compared to the Control Group Across Grade and Gender - Index of Reading Awareness